



PROCEEDINGS
OF THE
BIOLOGICAL SOCIETY OF WASHINGTON

TWO NEW SPECIES OF *CINARA* FROM ARIZONA
(APHIDAE)

By F. C. HOTTES

The two species described herewith, were sent me as immature specimens by Mr. Dennis Grassi who collected them on branches of *Pinus edulis* near Springerville, Arizona. It is a pleasure to acknowledge his assistance. It was not until one of the species had been determined as new, that I became aware of the fact that I had taken three specimens a year earlier.

Cinara rustica s.sp.

Oviparous female.

Size and general color:—Length from vertex to end of anal plate varying from 3.00-3.33 mm. Head black slightly powdery. Prothorax black with a few spots of powder. Meso and metathorax black mottled with powder. Anterior portion of abdomen black, almost free from powder, whatever powder is present is confined to a small amount at sides and an indistinct powdery median stripe. Just anterior to the cornicles there is a wide band of powder. The cornicles are black. Median to the cornicles there is an indistinct powdery stripe. Surface of abdomen not powdery reticulated, somewhat rough, and with some polish. Posterior portion of abdomen faded black with a greenish tinge. Ventral surface of abdomen powdery, not banded at rear. First antennal segment concolorous with head, second and third antennal segments pale dusky and uniform in color, fourth and fifth antennal segments pale dusky with ends much darker, sixth segment uniform dark dusky. Metathoracic femora pale at base to about middle, remainder much darker. Hind tibia with short region near base dusky, this followed by a region which is dusky yellow, this region is followed with dark dusky. Tarsi dusky. Cornicles with constricted area much darker than basal region. Posterior to the cornicles there are a few irregular shaped pigmented spots. Anterior to the cauda there are two pigmented spots.

Head and thorax.—Antennal segments with the following lengths: III .34-.375mm., IV .135-.15mm., V .15-.18mm., VI .075-.10 + .03mm. Third antennal segments may be without sensoria, or with one, the fourth antennal segment has the primary sensorium only, the fifth segment has the primary and one secondary sensorium, both of these are large and have wide rims. Antennal hair moderately numerous, fine, and with exceptions almost at right angles to segment. On the third segment the hairs vary in length from shorter, to just longer than width of segment.

Extended rostrum reaching about to cornicles, last three segments with the following lengths: .21, .19, .08 mm. Hairs on metathoracic femora fine, at right angles to segment, varying in length from much shorter than half width of segment to just under one half width of segment. Hind tibiae varying in length from 1.68-1.80 mm. Hind tibiae only slightly swollen, what little swelling present on basal half of segment. Sensoria on tibiae not typical, not tuberculate, few in number, and very difficult to differentiate, one has the feeling that they are present even if they can not be seen. Hair on metathoracic tibiae numerous, fine, up-standing except at apex, all shorter than width of segment, many shorter than half width of segment. Mesosternal tubercle absent.

Abdomen.—Outer margin of cornicles varying from .40-.48mm. irregular in outline, cornicles with few hairs which are quite uniform in distribution. The cornicle hair are slightly longer than the hairs on the dorsum and like them fine. Pigmented spots anterior to cauda with a single row of hairs on the median posterior margin and two rows of hairs more laterally. Cauda clear at base, pigmented portion of cauda setulose, hairs confined largely to the posterior margin, few in number.

Apterous viviparous female.

This form is described from four specimens, none perfect, having been removed from slides of *C. edulis* (W) taken in same region as oviparous females. Color in life not noted. Length from vertex to end of anal plate varying from 3.225-3.37mm. Antennal segments with the following lengths: III .345-.42mm., IB .15-.18mm., V .195-.21mm., VI .09 + .03-.045mm. Secondary sensoria distributed as follows: III 0-1, IV 1, V 1, primary sensoria present on third, fourth and fifth segments. All antennal segments smooth. Hair as in oviparous female. Last three segments of the rostrum with the following lengths: .195-.21, .18, .075mm. Ocular tubercles small. Mesosternal tubercle absent. Cornicles black with few hairs, outer margin of cornicle very irregular. Dorsum of abdomen reticulated. Region of abdomen between cornicles dull in color and slightly darker than rest of abdomen. Dorsum of abdomen with few hairs distinctly fewer than on ventral surface, but of same type and about the same length. Pigmented areas anterior to cauda divided, with single row of hairs on the posterior margin, anterior to these areas, there are two, more or less extensive pigmented areas. All four pigmented areas with a setulose surface. Cauda rather short, much narrower than anal plate. Genital plate with very few hairs, mid anterior region free from hairs.

This species keys to *Cinara burrilli* (W) in Palmer's key to the genus *Cinara* in "Aphids of the Rocky Mountain Region." Although the oviparous female of *burrilli* has not been described, it is thought to differ considerably from that species. For example the hair of *burrilli* are fewer and shorter, the cornicles much less extensive, fewer and less up-standing hairs on the antennae, and different host. Despite the fact that *C. rustica* keys to *C. burrilli* it is perhaps more closely allied to *C. terminalis* G.&P. from which it differs in having many more hairs on antennae and tibiae, shorter hairs on the tibiae, larger cornicles, and in distribution of powder, and in color.

Holotype: Oviparous female, reared on twig of *Pinus edulis* Grand Junction, Colo. Oct. 10, 1955. This specimen was sent me as an imma-

ture specimen, by Mr. Dennis Grassi who collected it on *Pinus edulis* near Springerville, Arizona. Morphotype: Apterous viviparous female, taken on *Pinus edulis* Springerville, Arizona, June 11, 1954. Both types deposited in the United States National Museum. This species feeds on the bark of twigs which are several years old.

Cinara metalica n.sp.

Oviparous female.

Size and general color.—Length from vertex to end of anal plate varying from 3.37-3.60mm. Head thorax and abdomen, anterior to cornicles mottled with mealy powder which is thicker on the abdomen than on the head and thorax. Under the powder and on areas free from it, the color may best be described as a cinnamon-brown with a pinkish cast, this color is reflected onto the powder making it look pinkish. Cornicles with only constricted area dark dusky-brown, remainder of cornicles concolorous with band between cornicles which is light brownish suggestive of velvet. This band has a short median very light stripe of powder. Posterior to the cornicles, the abdomen is a light tan-brown, this area is shining and has a metallic luster, this area is reticulated and has a slight amount of powder in the mid dorsal region. The ventral portion of the head, thorax and abdomen anterior to cornicles is powdery, this powder is carried upwards on the sides of the abdomen as a sharp pointed band. First two antennal segments concolorous with head. Third fourth and fifth antennal segments pale yellow, with apical regions progressively more and more dusky brown. Sixth antennal segment brown. Femora pale on basal half shading to dusky brown. Tibiae dark dusky brown near base, becoming yellowish dusky, and shading quickly to blackish-brown. Tars black.

Head and thorax.—Length of antennal segments as follows: III .34-.43mm., IV .10-.17mm., V .18-.25mm., VI .10-.12 + .04mm. Sensoria distributed as follows: III neither secondary or primary, IV no secondary, primary sensorium present or absent, V one secondary, primary present. Hair on antennae moderately few, of various lengths of which only two or three on the third segment are longer than width of segment. Antennal hair fine, set at an angle of about sixty degrees. Primary sensoria on fifth and sixth antennal segments large and with wide rims. Marginal sensoria bunched near primary. Sixth antennal segment much wider proximal to primary sensorium tapering from this region to each end. Median transverse suture well developed very dark. Dorsum of head with few hairs. Head little if any wider than prothorax. No specimen with extended rostrum.

Hind tibiae varying from 1.87-2.35mm. in length. First tarsal segment .09-.11mm. Second tarsal segment. 21-.24mm. in length. Hair on hind tibiae numerous, fine, those on the outer margin slightly longer and more numerous than those on the inner margin. The longest hair are less than half width of tibiae, and are set at an angle of forty-five degrees or less. The sensoria on the hind tibiae are not numerous, they are tuberculate, and scarce beyond the middle. The tibiae are scarcely swollen, and the sensoria are difficult to differentiate.

Abdomen.—The outer margin of the cornicles varies from .24-.30mm. The margin is irregular. The cornicles are two toned, the constricted

area is much darker than the margin, the two regions being incompletely separated by clear areas. The constricted area is acentric in position, being closer to the posterior margin of the cornicle. Hair on cornicles sparse, restricted almost to an irregular row and a double row on the constricted area. Dorsum of abdomen with few hairs, hairs much more numerous on ventral surface. Pigmented spots anterior to cauda rather narrow with a single row of hairs on posterior margin.

Alate male.

This form is described from a single specimen, found dead on the surface of the water in the moat surrounding the cage containing the branch on which it had developed. It was one of two immature males sent me from Arizona. When the two were observed alive the next to the last time, it was noted that they were about to become adult, they seemed very nervous and active, hence they were caged, but the cage was never placed within a moat. The next day one specimen had escaped and extra precautions were taken to prevent the escape of the remaining specimen. At that time it was not suspected that the remaining male was already an adult, with undeveloped wings, but such was the case. This must have been true of the specimen that escaped. It should be noted that this form is described as an alate although the wings are near pads, there is no question that the specimen is adult, as is indicated by the sensoria on the antennae, and the harpagones.

Length from vertex to end of anal plate 2.17mm. Color not closely observed, when alive it is recalled that there was little powder. Length of antennal segments as follows: III .43mm., IV .16mm., V .25mm., VI .12 + .04mm. Sensoria distributed as follows: III 42-45, on this segment the sensoria are very small, almost minute, distributed over most of surface except extreme base, some are larger than others, all are tuberculate. IV six sensoria irregularly arranged, but confined to one side of segment, neither this segment or the third, appear to have primary sensoria, if such are present they are small, and look like secondary sensoria for which they were taken. V three large secondary sensoria arranged in a row, plus primary sensorium. Hair on third antennal segment fairly numerous, quite upstanding, in length about equal to width of segment. Lateral lobes of thorax with many hairs on inner margins. Metathoracic femora 1.01mm. in length, with many fine, upstanding hairs, which are considerably shorter than width of segment. Length of hind tibiae 1.725mm. Hair on hind tibiae numerous, about as long as width of tibiae in mid region, and slightly shorter near the base, near the apex the hairs are slightly longer than the width of the tibiae. Tibial hairs more upstanding near basal region, and forming an angle of about forty-five degrees near the basal region, and forming an angle of about along the anterior margin. Cornicles with base measuring about .255mm. the constricted portion of the cornicle is acentric, being closer to the posterior margin of the cornicle. Harpagones short, bluntly pointed, with many hairs. Cauda with few hairs, confined largely to the posterior margin.

Holotype: oviparous female, Allotype: alate male. Both reared on branch of *Pinus edulis* sent from Springerville, Arizona by Mr. Dennis Grassi. Both slides deposited in the United States National Museum.

Male taken Grand Junction, Colorado, Oct. 5, 1955. Oviparous female taken Grand Junction, Colorado Oct. 3, 1955.

This species known only from the oviparous females and the male, may be distinguished at once from other species on *Pinus edulis* by its color, distribution and extensiveness of powder. Oviparous females are apt to be taken for *C. pinona* H when mounted, perhaps because both species have two toned cornicles. However antennal segments differ in length, the fourth segment being much shorter.

The short fourth antennal segment distinguishes this species at once from *C. edulis* (W) as will be noted in Palmer's key to the genus *Cinara* in "Aphids of the Rocky Mountain Region." It should be noted that Palmer's key is probably not intended to key oviparous females, it may be so used in this case. When so used the species keys to *C. burrilli* (W) more nearly than any other. *C. burrilli* is not known from the oviparous female, I would expect this form to differ from the oviparous form of *burrilli* in number of hairs on the tibiae, the hairs not being so upstanding and in the fourth antennal segment being shorter than the fifth, and in color and powder. Both *Cinara pinona* H and *Cinara metalica* may in life be distinguished at once from *C. edulis* (W) by the color of the tibiae.